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SOME AFRICAN ANTHIDIINE BEES

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The bees recorded in this paper are from the Cockerell–Mackie–Ogilvie Expedition, and the holotypes of the new forms will all be found in the American Museum. The species referred to *Anthidium* do not pertain to the typical section of that genus and will eventually be segregated under different subgeneric or generic names.

The following table will facilitate the separation of the species studied:

1.—Females....2.
Males....13.
2.—Short broad species, abdomen yellow at sides, and with a broad median black band to apex; scutellum all black....3.
Abdomen without such a median black band....5.
3.—Clypeal mark broadly conical in outline, lateral marks small. *Pachyanthidium xanthostomum* Cockerell, variety.
Clypeal mark truncate or broad above....4.
4.—Front tibiae dark on outer side; clypeal mark rounded above; tegulae with no yellow spot....*Pachyanthidium xanthostomum* Cockerell.
Front tibiae bright yellow on outer side; tegulae with a yellow spot. *Pachyanthidium truncatum livingstonei*, n. subsp.
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Tegulae dark with a light yellow spot....11.
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10.—Larger and more robust, with large head; two widely separated marks on top of head; femora mainly black....*Hypanthidium honestum*, n. sp.
Smaller, with ordinary head; occipital band entire; femora with more red. *Hypanthidium braunsi* (Friese).

11.—Tibiae entirely orange on outer side.....*Anthidium lobicaudum*, n. sp.
Tibiae at least mainly dark on outer side.....12.
12.—Larger and more robust; hind tibiae broadly yellow or red in front.
Anthidium poecilodontum Mavromoustakis.
Smaller and less robust; hind tibiae yellow only at base.
Hypanthidium capicola (Brauns).
13.—Abdomen with pairs of widely separated spots; small short species with red legs and hairy eyes.....14.
Abdomen not so marked.....15.
14.—No spots on second tergite, and no yellow marks on scutellum.
Pachyanthidium occipitale Cockerell.
Spots on second tergite, and light marks on scutellum.
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Scape all black.....18.
17.—Small; face all yellow below antennae; eyes green; tibiae yellow on outer side.
Hypanthidium sakaniense, n. sp.
Large and robust; supraclypeal area yellow only on lower margin.
Pachyanthidium severini maculiferum, n. subsp.
18.—Larger and more robust; abdomen partly red.
Pachyanthidium severini abjunctum, n. subsp.
Smaller; abdomen without red.....19.
19.—Axillae with a large yellow spot..*Pachyanthidium xanthostomum* Cockerell.
Axillae black.....*Pachyanthidium truncatum livingstonei*, n. subsp.
20.—Abdominal bands interrupted in middle; cream-colored marks at extreme sides of first tergite.....*Anthidium hispidulum*, n. sp.
Abdominal bands narrow, not interrupted in middle.....21.
21.—Clypeus all yellow.....22.
Clypeus black, or not all yellow.....23.
22.—Smaller; tibiae orange on outer side.....*Anthidium lobicaudum*, n. sp.
Larger; tibiae black on outer side....*Anthidium capense acaciae*, n. subsp.
23.—Clypeus with a pale yellow arched apical band.
Anthidium pallidicinctum multicinctum, n. subsp.
Clypeus with a large triangular pale mark....*Anthidium pallidicinctum* Friese.
Clypeus all black; mandibles mainly yellow..*Hypanthidium capicola* (Brauns).

Anthidium capense acaciae, new subspecies

MALE.—Clypeus cream-color, no lateral marks; mandibles pale with three teeth, the large apical one partly red and partly black, the others black; the very long and abundant hair of head and thorax all white, very slightly creamy dorsally; anterior tibiae with a broad brownish-yellow stripe in front; the tarsi are not all light, the middle and hind ones being largely blackened, especially posteriorly; no pulvilli; second recurrent nervure meeting outer intercubitus; thorax without light markings; band of first tergite very narrow and obscure; tergites 2 to 5 with entire ivory-white bands; sixth with a dull yellow band, contracted in middle; apex quadridentate, dull yellow.

Orange Free State: Gum Tree, February 29, 1932 (J. Ogilvie). This may be a race or only a variety, but it is easily known by the white hair of thorax above. So far as I can make out, *A. quadridens* Brauns is another subspecies of *A. capense*, having the red hair above, and the abdominal bands yellow. All the members of this group have the second recurrent nervure meeting outer intercubitus.

Anthidium hispidulum, new species

MALE.—Length about 7 mm., anterior wing 6; robust, black, head and thorax with long white hair, fulvescent on vertex, contrasting with the pure white of occiput; face narrow, the orbits converging below; mandibles light yellow, with three large black teeth; clypeus and lateral marks very pale yellow (supraclypeal area all black), the clypeus longer than broad, the sides nearly vertical; lateral marks filling space between clypeus and eye, and extending upward as broad bands, abruptly truncate at about level of antennae; vertex shining, with strong punctures; no light marks at top of head; scape with a pale yellowish stripe at upper end; flagellum long, black, second antennal joint about as long as third, the next three appreciably longer than third, and about equal; thorax wholly without light markings; mesothorax dull, with only a little space posteriorly shining; scutellum rounded, with a projecting very obtuse edge, the disc shining, with well-separated punctures; tegulae large, black, the front margin pallid; wings strongly dusky; second recurrent nervure meeting outer intercubitus; legs mainly black, with long white hair, forming long fringes on front and middle tibiae and tarsi; anterior femora and tibiae light red in front; middle and hind tibiae with a creamy-white spot at apex in front, that on hind tibiae large; front tarsi very pale reddish, the others darker, the hind basitarsi largely blackened, and with dense white hair, but the last joints of hind tarsi bright red; abdomen broad, glistening, with creamy-white marks; first tergite all black except a large pyriform mark at each extreme side; second similarly marked, except that the spots are elongated; tergites 3 to 6 with bands which are broadly and equally interrupted in middle, that on third excavated and slightly interrupted sublaterally, on fourth crossed sublaterally by an oblique black line; seventh tergite entirely black, rugose, with a shallow median emargination.

Natal: Greytown, October 20, 1931 (J. Ogilvie). Resembles *A. kimberleyanum* Friese, but differs by the broad lateral marks of face and much larger marks on tergites 3 to 6, as well as other characters. The two species are, however, known from opposite sexes, and it might seem possible that the differences were all sexual. Considering everything, with the very different localities, I do not think this is the case.

Anthidium lobicaudum, new species

MALE (type).—Length about 7 mm., anterior wing 6; rather robust, black, with light yellow markings; hair of head and thorax entirely white; mandibles yellow with the teeth black; not counting inner corner, there are two strong sharp teeth, and a rudimentary one between them; clypeus finely punctured, hardly at all shining, pale dull orange, the sides sloping, so that the clypeus is very broad at lower end, the

margin simple; lateral marks filling space between eye and clypeus, and extending upward to about lower level of antennae, where broadly squarely truncate, so that they make a right angle with the orbit; supraclypeal area black; scape black; flagellum shining, obscurely brown beneath; a small transverse yellow mark at each side of top of head; mesothorax and scutellum shining between punctures; spot on tubercles, very broadly interrupted band on mesothorax in front, broad outer margin of axillae, and margin of scutellum narrowly interrupted in middle, all cream-color; scutellum rounded, ordinary; tegulae large, black, with a cream-colored band in front; wings strongly brownish; second cubital cell very long, the second recurrent nervure going a short distance beyond its end; knees red; front and middle femora black above, pale yellow below; hind femora black with a yellow mark at base; tibiae bright orange; basitarsi pale yellow, small joints red; no pulvilli; abdomen shining, well punctured, with cream-colored markings; first tergite with a large mark at each side, and a very slender band across the middle; second with a narrow band, broadened laterally; third with a rather broad entire even band; fourth and fifth with very broad bands, margin of fifth red; sixth pale red with a broad paler band, not conspicuous; no lateral spines; seventh pale red, with a pair of broad rounded lobes, about or nearly as far apart as the width of one.

FEMALE.—Size and general appearance the same; mandibles with four teeth, the innermost minute; face black, the dull clypeus with the lower margin obscurely reddish; yellow marks present on top of head; thoracic marks as in male; legs marked nearly as in male, but hind basitarsi broad and dark brown; first tergite with the narrow band very slenderly united with the lateral spots; tergites 2 to 4 with narrow entire bands; apex red; ventral scopa shining white.

Belgian Congo (Katanga): Biano, August 8–11, male taken by A. Mackie, female by J. Ogilvie. The end of the abdomen recalls that of *A. lobiferum* Cockerell which has a red abdomen with pale yellow bands. There is perhaps some affinity with *A. enslini* Alfken, which lives in Egypt.

Anthidium pallidicinctum Friese

Natal: Greytown, October 20, 1931, males (A. Mackie, J. Ogilvie). The type locality is Pretoria. This may not be separable, as a species, from *A. integrum* Friese, but that name is preoccupied (*A. integrum* Eversmann, 1852).

Anthidium pallidicinctum multicinctum, new subspecies

MALE.—Length about 7 mm., anterior wing about 6.5 mm.; robust, with broad abdomen; black, with white hair, abundant on face and sides of thorax; eyes pale reddish brown; mandibles yellow, with two strong teeth, which are black with a red base; clypeus strongly punctured, but elevated and shining in middle (roof-like), black, except a very broad, curved, pale yellowish apical band; a narrow pale yellow stripe along inner orbits, to above level of antennae; vertex densely punctured, hardly shining; antennae black, the flagellum faintly reddish beneath; no light spots at top of head; thorax all black, except that the scutellum has a widely interrupted slender band on the projecting keel, which is shallowly emarginate in middle, and

rounded at sides; mesothorax and scutellum shining on disc, but closely punctured; area of metathorax dull above, but highly polished below the transverse ridge; tegulae black, with a pellucid white anterior margin; wings brownish hyaline; second recurrent nervure meeting outer intercubitus, first near base of second cubital cell; femora black, with a light spot on knees; front tibiae very short and thick, at apex reddish in front, and with a yellow mark behind; middle tibiae black, with a light dot at apex; hind tibiae with a pale yellow stripe, confluent apically with a round spot; front tarsi pale red; mid-tarsi darker, the very long basitarsi pale yellow in front; hind tarsi black, the last joint light red, and the basitarsi with a large yellow patch; front and middle tibiae and tarsi with long fringes of pure white hair; abdomen broad, black, tergites 1 to 7 with pale yellow bands, that on first broken in middle; none with any sublateral emargination; seventh tergite transverse, unarmed, the margin minutely crenulate (resembling the sixth tergite of *A. reticulatum* Morawitz and *A. mocsaryi* Friese); venter black; when the yellow band of seventh tergite is seen from beneath, it appears obtusely angulate and very narrowly interrupted in middle. There are no pulvilli on the feet.

Transvaal: Louis Trichardt, alt. 3112 ft., April 4–10, 1932 (J. Ogilvie). In Friese's table this runs near *A. capicola* Brauns, which has the end of the abdomen quite different. It is actually very close to *A. pallidicinctum* Friese (*pallidicindum*, in Friese's paper, is doubtless a misprint), which has a large triangular mark on clypeus, but agrees in structure. I conclude that it is best regarded as a subspecies, but it seems possible that the sexes described by Friese do not belong together, in which case the female, first described, must be taken as the type. The matter is further complicated, as shown in Ann. Mag. Nat. History, June, 1932, p. 519. I concluded that *A. pallidicinctum*, as represented by the female, was a synonym of *A. albolineatum* Cockerell, but if that is correct, I do not think the male can possibly belong with it. I also thought that *A. integrum* Friese (based on a male from Willowmore), which has been held to be the prior name for *A. pallidicinctum*, was distinct. The male *A. integrum* is said to have tridentate mandibles, whereas those of *A. pallidicinctum* from Greytown are bidentate, as are those of *multicinctum*. The matter, therefore, remains uncertain until the types are reëxamined, and the sexes are definitely associated. Brauns (1912) gave an account of both sexes of *A. integrum*, stating that the abdominal bands were ivory-white in the female, yellow in the male. The name *A. integrum* is preoccupied, so that if the two Friesean species are the same, *A. pallidicinctum* stands, unless (as I supposed from comparison of the females) it falls before *A. albolineatum*.

Anthidium poecilodontum Mavromoustakis

Cape Province: Van Rhyns Pass, November 21 (Cockerell). One

female. The second recurrent nervure in this species does not reach the end of the second cubital cell.

Dianthidium spilotum Cockerell

Natal: Greytown, October 20, 1931 (J. Ogilvie). A female, differing from a cotype by the better developed light markings on abdomen, the apical patch being very large. The clypeus has a small pale mark at each side above the apical corner. The type locality of the species is Karkloop, Natal. This is nine miles from Howick, which is about thirty-five miles from Greytown.

Dianthidium zebra spilognathum, new subspecies

FEMALE.—Length 7 mm., anterior wing 5; nearly agreeing with *Anthidium zebra* Friese, but differing from a Willowmore *A. zebra* thus: clypeal mark with the median (upward) extension less slender, and the lateral ones more developed; lateral marks large and triangular, filling space between clypeus and eye, abruptly truncate at lower level of antennal sockets; in reality the inner part of the mark represents an extension, comparable to the dog-ear marks of *Perdita;* wings very dark; femora more blackened (in both the hind tibiae are black, with a pale mark at base, and the broad hind basitarsi on outer side are creamy white, with the end black); sixth tergite with the large pale patch entire, not divided by a black band in middle. The ventral scopa does not differ. The feet have pulvilli, and the second recurrent nervure goes beyond the end of second cubital cell. The sides of mesothorax, the axillae and scutellum are marked with yellow. The mandibles are dark, with a small light spot.

Natal: Greytown, October 20, 1931 (L. Ogilvie). Somewhat related to *D. spilotum* Cockerell, but the markings are quite different. The *Anthidium zebra* Friese must be called *Dianthidium zebra.*

Hypanthidium abdominale (Friese) variety **histrionicum,** new variety

This is a very small specimen, about 5.5 mm. long; clypeus black with the appearance of a pale yellowish margin, but this due to hair; mandibles red clouded with yellowish, the teeth black; flagellum bright red beneath; occiput with a continuous yellow band, extending some distance down cheeks; tegulae very bright red, with a pale yellow spot in front; tubercles with a small pale spot; mesothorax and scutellum shining, with well-separated punctures; mesothorax all black, but axillae with a yellowish-white mark, suffused with red around the margins, and scutellum with a broad but widely interrupted yellowish-white band; wings only slightly dusky; first recurrent nervure as far from base of second cubital cell as second is beyond apex; femora black, with pale reddish knees, the anterior femora pale red in front; tibiae all clear red, with a pale yellow knee-spot; front and middle tarsi red; hind tarsi shining black, with bright red hair on inner side; abdomen black with slender yellowish white bands, but margins of tergites reddish, and sixth tergite broadly reddened basally; band on first tergite enlarged at sides, otherwise slender and suffused with red, but entire; bands on tergites 2 to 5 greatly narrowed sublaterally; ventral scopa bright orange, shining white at sides. The hair of head and thorax is white.

Cape Province: Blaukrans, near Calvinia, November 17, 1931, one female (L. Ogilvie).

It will be observed that this is not the female Friese described for his *H. abdominale*, his insect being apparently *H. oraniense* (Brauns). Brauns in 1912 gave a table of this group, and the present insect goes fairly well to *H. abdominale* as there interpreted. In the British Museum I saw both sexes of *H. abdominale* and noted that the ground-color of the abdomen was red in the male, black in the female. The supposed female *H. abdominale* of Friese was named *nigritarse* Friese in 1904, and this has priority over Brauns' *oraniense*, supposing it to be the same insect. As the Blaukrans bee is not typical *H. abdominale*, I provisionally give it a varietal name, not knowing whether it represents individual variation or a distinct species.

Hypanthidium halophilum, new species

FEMALE.—Length about 8 mm.; robust, black, with white hair on face, cheeks and sides of thorax, but rather dark ferruginous on head and thorax above; face broad, but eyes converging below; the following yellow markings are all changed to bright red by cyanide in the type, more than lower half of clypeus, mandibles except the five black teeth (the two innermost minute), knees, outer sides of all the tibiae (front and middle tibiae with a black patch posteriorly near base, hind tibiae entirely black behind), mark at sides of axillae, uninterrupted margin of scutellum, narrow entire bands on tergites 1 to 5, and two large marks, slightly united in middle, on sixth tergite; scape long; flagellum short, dusky red beneath; no light spots on head above or on mesothorax; scutellum rounded, ordinary; tubercles with a small yellow spot; tegulae black on disc, yellow in front and behind; wings brownish, second recurrent nervure going beyond end of second cubital cell; femora mainly black, but anterior ones red in front, and hind ones with a red (or yellow) mark on apical part; tarsi yellow, the hind basitarsi blackened apically and posteriorly, and the small joints blackened behind; front and middle tarsi with dense snow-white hair at base; no pulvilli; abdomen very densely punctured; sides of tergites prolonged into sharp pellucid spines; ventral scopa shining white.

Cape Province: Sea Point, Cape Town, November 1931–January 1932 (J. Ogilvie). At first sight, it looks like *H. capense* (Cameron), but it is easily distinguished by the partly yellow clypeus, yellow mandibles, and yellow border of scutellum.

Hypanthidium honestum, new species

FEMALE.—Length about 8 mm., anterior wing 6; very robust, with very large head, the diameter of which is nearly 4 mm.; hair of head and thorax white, abundant on face and pleura; face very broad, entirely black; mandibles very broad, red, with four black teeth; clypeus entirely dull and very densely punctured; lower margin of supraclypeal area broadly emarginate, highly polished; vertex shining, with strong punctures; at each side of top of head is a large reddish-orange mark, tapering to a point at each end; antennae black, the short flagellum obscurely brownish beneath, the scape strongly punctured; mesothorax and scutellum very strongly punctured on a polished surface; median sulcus of mesothorax strong; the only light

marks on thorax are the reddish-orange spots on axillae, and interrupted band on scutellum; area of metathorax dull and minutely punctured above, polished below the transverse ridge; tegulae large, light ferruginous (not at all dark at base), with an orange band in front; wings reddish; first recurrent nervure more distant from base of second cubital cell than second is beyond the cell; femora black, marked with red apically in front; tibiae and tarsi bright red, the tarsi infuscated apically, and this involves all the small joints of hind tarsi, but not the basitarsi; no pulvilli; abdomen broad, shining black, with well-separated punctures; sides fringed with white hair, but ventral scopa dark brown; no lateral denticles; tergites 1 to 5 with entire reddish-orange bands, successively broader, but on first expanded at each extreme side (sixth tergite missing in type); first sternite reddened apically.

Cape Province: Calvinia, November 16, 1931 (Alice Mackie). Looks at first like an overgrown *H. braunsi*, but that has a white ventral scopa, entire occipital band, and other differential characters. It is allied by the dark scopa to *H. matjesfonteinense* (Mavromoustakis), but it differs from that by the bright red tegulae, clear red hind basitarsi, etc.

Hypanthidium sakaniense, new species

MALE.—Length about 7 mm.; of the usual *Hypanthidium* form, agreeing also in the scutellum, the second recurrent nervure going far beyond end of second cubital cell, and the feet without pulvilli; eyes pale green; mandibles bidentate, pale yellow with the teeth black; face entirely pale yellow below antennae; lateral marks ending above at about level of antennae, but descending toward orbit; the yellow extends upward, filling the space between antennae, just above antennae the sides of the figure converge to form a right angle; face and front with pure white hair; clypeus broad above, and much expanded at sides, the margin concave; a broadly interrupted yellow stripe on top of head; fourth antennal joint enlarged and red beneath, the flagellum otherwise black; mesothorax and scutellum coarsely punctured, shining between punctures; mesothorax with a pair of pale yellow bands on front margin, the distance between them greater than the length of either; a yellow spot on tubercles; axillae and the rounded scutellum broadly bordered with pale yellow, the band on scutellum interrupted; hair of thorax white; tegulae large, dark brown, with a large yellowish-white spot on outer side; wings dusky, especially in the apical region; second cubital cell very long, the first recurrent nervure ending as far from its base as second beyond its apex; basal nervure going far basad of nervulus; legs yellow, with the knees reddish, and a red spot at end of each tibia; the femora are dark above; abdomen broad, shining, well punctured, the apex with a pair of short broad obtuse lobes, the sixth tergite convex laterally, the apical angles dentiform but short; first tergite with a large yellow mark on each side; second with a band, the lateral portions of which are broad, abruptly narrowed to the almost linear median portion, which is interrupted in middle; third tergite with a broad yellow band, somewhat narrowed in middle, the extreme base black; remaining tergites yellow, with thin pale brown margins; venter with much pure white hair.

Belgian Congo (Katanga): Sakania, September 21, 1931 (J. Ogilvie).

In my table of Belgian Congo species it runs out entirely, with no close relative. In Friese's table it goes nearest to the South African *Anthidium integrum* Friese, but that does not have the bilobed apex, and the markings are different. The caudal end is suggestive of *Anthidium nitidicolle* Friese.

Pachyanthidium (Trichanthidium) carinaticeps, new species

MALE.—Length about 5.9 mm., anterior wing 6; very short and broad, with long wings, the anterior wings dark brown, with a hyaline band down the middle, reaching a little beyond the cells; mandibles pale orange, black at tip; clypeus cream-colored, highly polished, little broadened below; hair of face white, but of top of head light red; scape bright red, flagellum obscurely reddish beneath; elevated occipital keel red, basally with a pale band; tubercles and tegulae red; axillae with outer half red; scutellum with a pair of transversely elongate large triangular pale yellow marks almost touching in middle line, and the broad margin hyaline; legs red, the femora mainly black, but red apically; tergites with rufous hind margins; first tergite shining, with well-separated punctures, and a light yellow spot at each extreme side; second to fifth with successively smaller sublateral spots, the second also with lateral spots, but the others only reddened at extreme sides; structure of abdomen as in *P. cucullatum* Friese, the three slender apical teeth red. Eyes hairy. The feet have distinct though small pulvilli.

Cape Province: Mitchell's Pass, Ceres, February 1932 (Alice Mackie). Very close to *P. cucullatum* (Friese), but known by the large yellow marks on scutellum; and the paler, less broadened clypeus, in which respect it approaches *P. occipitale* Cockerell, but the mesothorax is shining, with well-separated strong punctures, while in *P. occipitale* it is dull and more densely punctured.

Pachyanthidium (Trichanthidium) occipitale Cockerell

Southern Rhodesia: Matopo Hills, April 1932 (J. Ogilvie). One male, which I refer to *P. occipitale* rather than to *P. cucullatum* (Friese), because the clypeal yellow patch is highly polished and weakly punctured, and not expanded below. (In *P. cucullatum* it is more strongly punctured, and broadened below.) The second tergite is without sublateral spots, which are well-developed in a *P. occidentale* from Elisabethville.

Pachyanthidium severini (Vachal)

This species was described from a male collected by Duvivier at Moliro, French Congo. It proves to be widely spread over Africa, but runs into a number of local races or subspecies, which may be separated thus:

1.—Scape marked with yellow in front, either a continuous stripe or two spots; lateral margins of mesothorax entirely black; axillae and margin of scutellum with pale stripes, those on scutellum sometimes feebly developed; first two

tergites black with large yellow marks at sides, third black at base (Beit Bridge, Southern Rhodesia, April 12, 1932, four males, variable in size, collected by Alice Mackie and J. Ogilvie).....*P. severini maculiferum*, n. subsp.
Scape not marked with yellow in front.....2.
2.—Scutellum and axillae entirely black; first two tergites broadly black in middle, red and yellow at sides, third with the part before the depression black in middle; sides of mesothorax black....*P. severini melanaspis* (Cockerell, 1935).
Scutellum and axillae with light markings.....3.
3.—First tergite black in middle, and second partly black; mesothorax without a lateral yellow band..... .....*P. severini severini* (Vachal).
Black area of abdomen reaching third tergite; mesothorax laterally with a yellow band.....*P. severini daressalamicum* (Strand).

A male from Biano, Belgian Congo, August 8–11 (J. Ogilvie), has the abdomen and entirely black mesothorax as in *P. severini maculiferum*, but the scape is entirely black; the supraclypeal area has only a barely visible yellow speck at each lower corner; the lateral face-marks take the form of very broad bands, contiguous with clypeus, but only touching the orbit at lower end, the upper end obliquely truncate with the outer corner highest; the spot on axillae is practically obsolete. The mandibles are yellow except the teeth and lower margin. Compared with the type of *P. severini melanaspis* Cockerell, from Uvira, this is somewhat smaller, the yellow marks on top of head are much smaller, the face-marks are different, the punctures of the entirely dull mesothorax are much finer and closer, and the scutellum is shorter and more finely punctured. The sculpture of mesothorax and scutellum similarly separate it at once from *P. severini daressalamicum*, at least as represented by a specimen from Umtali, Southern Rhodesia. On comparing the type of *P. severini maculiferum*, I find the mesothorax and scutellum to be of the same type as in the Biano specimen, but there is some difference in the first tergite, which in *maculiferum* is very finely and closely punctured to the apex, whereas in the Biano insect the part beyond the slight dorsal transverse ridge is shining, its basal portion with punctures running in well-separated lines, its apical part with minute punctures, not nearly so dense as in *maculiferum*.

It seems evident that the Biano specimen must stand as another subspecies, which may be called: *Pachyanthidium severini abjunctum*, new subspecies.

Pachyanthidium truncatum livingstonei, new subspecies

FEMALE.—Like *P. truncatum alberti* Cockerell, with broad black band at end of abdomen, but clypeus entirely lemon yellow, the upper margin of the yellow, therefore, very broadly truncate, not obtusely conical as in *P. truncatum alberti*, and only a black line (instead of a cuneiform space) between clypeal yellow and upper part of

lateral marks, which are broadly obliquely truncate, some distance above level of clypeus. The yellow occipital band is continuous (though very slender in middle), and the axillae have a very slender yellow line along outer margin. In *P. truncatum alberti* the occipital band is very broadly interrupted, and the axillae are all black.

Tanganyika Territory: Ujiji, August 1931 (J. Ogilvie). At Dilolo in Katanga (Cockerell, J. Ogilvie) occurs a form which may be considered a variety of *P. truncatum livingstonei*, transitional toward *P. truncatum alberti*. The upper edge of clypeal yellow is very broad, but distinctly rounded instead of abruptly truncate, the occipital band is interrupted, the axillae have a very minute yellow dot in one specimen, none in the other. It is apparently another local race, but I have not thought it worth while to give another name. The ventral scopa is white in all these insects; the Katanga ones have collected pale pink pollen. The name given recalls the meeting of Livingstone and Stanley at Ujiji. The spot is now marked by a monument.

I have been much perplexed concerning the male of this insect. I have three specimens, two from Elisabethville, September 11–17, 1931 (W. P. Cockerell), and one from Greytown, Natal, October 20 (L. Ogilvie), which I place here; they are, however, the species described by Friese (1924) as the male of *P. compactum* (Smith). I have from Durban, Natal (C. N. Barker), what I consider to be male *P. compactum*. It has the very short broad scutellum, and has yellow marks at sides of occiput, and sixth tergite with the lateral thirds yellow. I believe it to be correctly named. The supposed male *P. truncatum livingstonei* is very closely allied, but certainly different. There are no light marks on occiput; the first two tergites have large yellow marks, pointed mesad, at sides; the third has a very narrowly interrupted yellow band; the following tergites are rich yellow right across. The apex has a pair of widely separated denticles, and the margin is swollen on each side; essentially the same structure as figured by Mavromoustakis (1934) for *Anthidium junodi* Friese. The true female of *P. compactum*, as described by Smith, has the sixth tergite all black. Hence it would appear that the male of *P. compactum*, as recognized by me, is more like *P. truncatum livingstonei* than is the male assigned to that insect. This seems anomalous, and while I believe my interpretation will stand, it may be confirmed or refuted by later researches.

Pachyanthidium xanthostomum Cockerell

Belgian Congo (Katanga): Kafubu Mission, September 1931, two females (J. Ogilvie, L. Ogilvie).

Southern Rhodesia: Umtali, May 1932 (J. Ogilvie); a male from Vumba, female from Christmas Pass. The male has a large yellow spot on axillae, and a minute one at extreme sides of scutellum; there is a small yellow mark on the lower margin of the supraclypeal area. The abdominal markings are orange in the female, lemon yellow in the male.